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ABSTRACT

This document reports on recent trends in graduate school survival. Data were obtained from a national study of 1950-1953 post-master's students; a recent pilot project in attrition conducted at the University of California, Berkeley; and on trend data in doctoral attrition provided by the Graduate Division at Berkeley. Emphasis is placed on the sex differences in the trends, particularly concerning the processes which operate to drive men as well as women out of graduate school. Some concrete ways in which graduate students can take charge of their own autonomy to become apprentices, and ultimately colleagues are suggested. (Author/MJM)

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SEX DIFFERENCES IN GRADUATE SCHOOL SURVIVAL

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SEX DIFFERENCES IN GRADUATE SCHOOL SURVIVAL

This is a report on recent trends in graduate school survival. It is based on national survey data, a recent pilot project in attrition reduction conducted at the University of California, Berkeley, and on trend data in doctoral attrition provided by the Graduate Division at Berkeley.

A national study of 1950-1953 Post-Master's students in the traditional arts and sciences shows a sex difference of twenty percentage points in completion of the doctorate by December, 1962. (Tucker, Gottlieb , and Pease, 1964.) While 65% of the men in the sample had earned the degree nine to twelve years later, only 45% of the women had done so. A similar pattern was found among Woodrow Wilson Fellows who entered graduate school from 1958 through 1963. (Sells, 1973.) In the national sample, the mean time to completion of the doctorate was 8.5 years, so the Mooney data gathered on Woodrow Wilson Fellows six to eight years after entrance to graduate school were analyzed in terms of dropouts rather than completions. At the time of the study, 44% of the men and 64% of the women were no longer in graduate school, and had not earned the doctorate. Data on the entering cohort of 1962 doctoral students at Berkeley show that by the fourth year of graduate school, 22% of the men had dropped out, compared with 42% of the women.

The pilot project at Berkeley grew out of concern with understanding the psychological and sociological factors contributing to the twenty per cent sex difference. We were particularly concerned with isolating those factors which might be different for women graduate students in the 1970's, so that expectations based on the behavior of women in the 1950's and 1960's would no longer be imposed on contemporary women. The project consisted of an eight week series of two hour sessions in which groups of women from a variety of disciplines attempted to define and articulate problems faced by women in graduate school, and to generate solutions to these problems.

Because of the comparatively short duration of the project, the discussions were somewhat more structured than under the usual Consciousness Raising procedures of women's groups in the past few years. A number of recurring themes emerged from the discussions. They were echoed and amplified independently in a questionnaire survey of non-participants from the

MAILED ANNOUNCEMENT OF THE PROJECT. THE MAJOR THEMES EMERGING FROM THE GROUP EXPLORATIONS AND THE QUESTIONNAIRE RESPONSES CAN BE GROUPED INTO THREE CATEGORIES:

1. FACTORS BEYOND THE CONTROL OF STUDENTS OR FACULTY.
2. FACTORS WITHIN THE CONTROL OF FACULTY.
3. FACTORS POTENTIALLY WITHIN THE CONTROL OF STUDENTS.

EACH GROUP WILL BE OUTLINED BELOW, WITH THE GREATEST EMPHASIS ON THOSE FACTORS POTENTIALLY WITHIN THE CONTROL OF STUDENTS THEMSELVES.

1. <u>FACTORS BEYOND THE CONTROL OF STUDENTS OR FACULTY.</u>

* DECLINE IN FEDERAL AND PRIVATE SOURCES OF GRADUATE STUDENT FINANCIAL SUPPORT, WHICH MAKES STUDENTS INCREASINGLY DEPENDENT ON DEPARTMENTAL GOOD WILL FOR SUPPORT.
* RISING TUITION COSTS, AND COSTS OF LIVING IN GENERAL.
* DECLINING JOB MARKET FOR PH. D.'S, COMBINED WITH THE PROLIFERATION OF DOCTORAL PRODUCTION FROM LOWER QUALITY INSTITUTIONS.

2. <u>FACTORS WITHIN THE CONTROL OF FACULTY.</u>

* LACK OF WOMEN AS ROLE-MODELS ON THE FACULTY, WHICH AFFECTS THE SOCIALIZATION PROCESS OF THE WOMAN GRADUATE STUDENT.
* POOR FORMAL ADVISING PROCEDURES, WHICH ARE THE SOURCE OF MUCH UNNECESSARY CONFUSION AND BITTERNESS.
* EXCLUSION OF WOMEN FROM THE INFORMAL COMMUNICATIONS NETWORK BY BOTH FACULTY AND GRADUATE STUDENTS, WHICH CONTRIBUTES TO AN INCREASING SENSE OF INVISIBILITY AS TIME PASSES.
* EXCLUSION OF WOMEN FROM THE TRADITIONAL APPRENTICE RELATIONSHIPS WITH FACULTY.
* INDIFFERENCE OF PROFESSORS. MANY WOMEN FEEL THAT THE REMOTENESS AND UNAPPROACHABILITY OF PROFESSORS MAKES IT DIFFICULT TO SEEK ADVICE AND HELP.
* MYSTERY, CHARACTERIZED BY THE LACK OF EASY AVAILABILITY OF INFORMATION. MANY WOMEN CITED THE ABSENCE OF WELL-DEFINED, <u>PUBLIC</u> CRITERIA FOR EVALUATION, REQUIREMENTS, OR PROCEDURES.
* SECRECY. MANY COMPLAINED ABOUT THE ABSENCE OF INFORMATION ABOUT ATTRITION, FLUNKING, AND SUCCESS RATES WITHIN THE DEPARTMENT; ABOUT THE LENGTH OF TIME IT TAKES TO GET THE DEGREE; ABOUT THE EMPLOYMENT SITUATION ONCE THEY EARN THE DEGREE. THERE WERE ALSO COMPLAINTS ABOUT THE ABSENCE OF DUE PROCESS FOR STUDENTS WHO FELT THEY WERE WRONGFULLY BEING DROPPED FROM DOCTORAL PROGRAMS.

3. Factors potentially within the control of students.

These factors were repeatedly recurring themes in the group discussions and the non-participant questionnaire. Each woman in the group had initially perceived ~~than~~ them as unique, personal problems. The major insight arising from the group process was the recognition by the women involved that their feelings were in fact not individual, and even more importantly, that they were not limited to students in their own departments. Recognition of these feelings as pervasive characteristics of graduate student life seems to have made it possible to deal with them more effectively.

Problem areas were raised at two different levels, psychological and sociological.

The Psychological Level

Students mentioned the following kinds of feelings which interfere with performance and inhibit the kind of sustained effort needed for intellectual achievement, and which seem to become more intense as length of time in graduate school increases:

1. Lowering of self-confidence.
2. Lowering of self-esteem.
3. Abivalence about professional and career norms which seem to exclude the legitimacy of personal life.
4. Ambivalence about professional norms which put research ahead of teaching.
5. Ambivalence about success and failure, arising from fears of professional success as inherently defeminizing.
6. At least three different forms of alienation:
    a. Alienation arising from ambiguity about the norms governing academic and professional success. This ambiguity could be resolved by explicit clarification of what it takes to succeed in a field, so that students could decide early in their graduate careers whether or not they want to play the game.
    b. Alienation arising from the student's sense of powerlessness. To the extent that she perceives her academic life outside of her own control, she will be hindered in degree progress. This sense of powerlessness could be resolved by providing greater opportunity for student participation in the decision making processes which affect doctoral progress.
    c. Alienation arising from a sense of the meaninglessness of hurdles to be passed. This could be resolve by clarifying the relationship between curriculum hurdles and their contribution to professional growth and development.

The Sociological Level

Graduate students frequently complain about the infantalization imposed on them by graduate school. The women in the pilot project also mentioned this. A faculty advisor told one of our women scientists that "the trouble with students is they want to take too much charge of their own lives." Of course it is not always clear which way the causal arrow operates. Do faculty behave in a paternalistic manner because students behave in a dependent, childlike manner? Or do students behave in a dependent, childlike manner because faculty expectations elicit and reward such behavior? Is the question of paternalism versus autonomy related to the sex of the student, or does it affect the progress of male students as well?

Women enter graduate school with stronger records than men. They have to be better to survive the initial screening process. All of the women in the exploratory group, and most of the women in the questionnaire survey reported a sense of progressive demoralization, of skidding downhill in their sense of competence, self-esteem, and self-confidence. They see the male graduate students with whom they entered accepted as apprentices and junior colleagues, but feel shut out from such relationships themselves.

The evidence from the pilot project at Berkeley is corroborated by findings in a national survey of graduate students, conducted by the Carnegie Commission on Higher Education. One of the questionnaire items was "Does the Professor with whom you have the most academic contact regard you primarily as: a colleague, an apprentice, an employee, or a student?". Table 1 on page 5 shows the percentage of doctoral students who responded that their primary faculty contact regarded them as "colleague" or "apprentice", broken down by sex and discipline.

In the national sample, the sex differences in being treated as an apprentice or colleague are large and statistically significant among students in Psychology, Anthropology, the Biological Sciences, Sociology, History, English, and Mathematics. The mean sex difference in these seven disciplines is nineteen percentage points. The discipline differences are even larger.

TABLE 1

PERCENTAGE OF DOCTORAL STUDENTS WHOSE PRIMARY FACULTY CONTACT REGARDS THEM AS A COLLEAGUE OR APPRENTICE, BY SEX AND DISCIPLINE.

DISCIPLINE	MEN	WOMEN	PERCENTAGE DIFFERENCE	TOTAL
PSYCHOLOGY	72%	53%	19*	65%
	(176)	(95)		(271)
ANTHROPOLOGY	72%	50%	22*	61%
	(51)	(50)		(101)
CHEMISTRY	58%	54%	4 NS	57%
	(235)	(35)		(270)
PHYSICS	57%	36%	21 NS	56%
	(265)	(14)		(279)
BIOLOGICAL SCIENCES	56%	45%	11*	53%
	(393)	(150)		(543)
SOCIOLOGY	61%	38%	23*	52%
	(101)	(44)		(145)
HISTORY	57%	37%	20*	52%
	(252)	(90)		(342)
ENGLISH	52%	33%	19*	44%
	(197)	(149)		(346)
MATHEMATICS	39%	22%	17*	36%
	(268)	(50)		(318)
DISCIPLINE PERCENTAGE DIFFERENCE	33*	31*		29*

SOURCE: SECONDARY ANALYSIS OF DATA GATHERED BY THE NATIONAL SURVEY OF HIGHER EDUCATION, SPONSORED BY THE CARNEGIE COMMISSION ON HIGHER EDUCATION.

* STATISTICALLY SIGNIFICANT AT THE .05 LEVEL, USING A CONSERVATIVE ESTIMATE OF A TWO-TAILED TEST.

ALL OF THE TABLES BASED ON THE CARNEGIE DATA WERE BASED ONLY ON THE INSTITUTIONS DESIGNATED "HIGH QUALITY UNIVERSITY" IN THE CODEBOOK. THEY DO NOT INCLUDE MEDIUM OR LOW QUALITY UNIVERSITIES, FOUR YEAR COLLEGES, OR JUNIOR COLLEGES.

Students in the pilot project at Berkeley reported an increasing sense of not being taken seriously, by faculty, or by their fellow students. This sense of not being taken seriously contributes to their sense of demoralization, and of futility in pursuit of the doctorate. Again, the evidence from a self-selected sample of women concerned about their anxieties about graduate school is corroborated by data from the Carnegie national survey of graduate students. Table II, below, shows the distribution of responses to the Carnegie item that "Professors in my department don't really take female graduate students seriously, by sex and year in school. While 26% of the first year women agreed strongly or agreed with reservations to the item, 36% of the fourth year women did so.

TABLE II

PERCENTAGE OF GRADUATE STUDENTS WHO AGREE THAT PROFESSORS IN MY DEPARTMENT DON'T REALLY TAKE FEMALE GRADUATE STUDENTS SERIOUSLY, BY SEX AND YEAR OF GRADUATE SCHOOL

Year of Graduate School	Men	Women	Total	Sex Difference
First	22% (2195)	26% (1044)	23% (3239)	4
Second	25% (1520)	28% (465)	25% (1985)	3
Third	28% (1077)	33% (244)	29% (1321)	5
Fourth	27% (720)	36% (137)	29% (857)	9*
Fifth or More	23% (979)	30% (279)	25% (1258)	7*
Total	24% (6491)	28% (2169)	25% (8660)	4
Year Difference First to Fourth	+ 5	+ 10*	+ 6	

* Percentage difference is statistically significant at the .05 level.

If we assume that faculty beliefs about the seriousness and dedication of female graduate students are based on their previous experience with having women graduate students drop out, we would predict large differences in agreement to the item across the ranks of faculty appointments, with Full Professors showing higher percentage agreement than Associate Professors or Instructors and Lecturers. In fact, the differences are modest.

TABLE III

FACULTY: % AGREEMENT THAT FEMALE GRADUATE STUDENTS ARE NOT AS DEDICATED, BY RANK AND SEX

	Full Prof	Assoc Prof	Asst Prof	Inst	Lecturer	Rank Difference
Men	30%	28%	29%	25%	23%	7*
	(2118)	(1180)	(1539)	(274)	(223)	
Women	20%	14%	8%	19%	20%	-
	(45)	(76)	(165)	(64)	(94)	
Total	30%	27%	29%	25%	23%	
	(2163)	(1256)	(1704)	(338)	(317)	
Sex Difference Within Ranks	10 ns	14*	21*	6 ns	3 ns	

The twelve point difference between agreement by women Lecturers and Full Professors compared with women Assistant Professors is not significant because of the small number of cases involved.

It appears that faculty perceptions of the seriousness of women graduate students have no relation to their number of years experience with students succeeding or dropping out. Among those who have been teaching for one year or less, 23% agreed that women are less dedicated, compared with 22% among those who have been teaching for thirty or more years. The N's are large enough to preclude random fluctuation, with 1119 and 787 respectively.

TABLE IV, ON PAGE 9 SHOWS THE DISTRIBUTION OF FACULTY RESPONSES TO THE ITEM " THE WOMEN GRADUATE STUDENTS IN THIS DEPARTMENT ARE NOT AS DEDICATED AS THE MALES," AND THE DISTRIBUTION OF FEMALE STUDENT RESPONSES TO THE ITEM "THE PROFESSORS IN MY DEPARTMENT DON'T TAKE FEMALE GRADUATE STUDENTS SERIOUSLY." THERE ARE LARGE AND STATISTICALLY SIGNIFICANT DIFFERENCES IN FACULTY ATTITUDES TOWARD WOMEN, ACROSS DISCIPLINES, IN STUDENT PERCEPTIONS OF FACULTY ATTITUDES, ACROSS DISCIPLINES, AND MOST IMPORTANTLY, BETWEEN FACULTY ATTITUDES AND STUDENT PERCEPTIONS IN HISTORY, ENGLISH, POLITICAL SCIENCE, AND SOCIOLOGY.

AGAIN, IT IS NOT CLEAR WHETHER STUDENTS PICK UP AND REFLECT FACULTY EXPECTATIONS WITH RESPECT TO THEIR SERIOUSNESS, OR WHETHER STUDENTS BEHAVE IN A MANNER WHICH ELICITS EXPECTATIONS OF LACK OF SERIOUSNESS.

ONE OF THE THEMES EMERGING FROM THE PILOT PROJECT AND THE NATIONAL SURVEY DATA WAS THE SENSE OF EXCLUSION FROM THE INFORMAL COLLEAGUE OR APPRENTICESHIP RELATIONSHIP WITH FACULTY. IT WAS PARTICULARLY STRONG FOR WOMEN IN THE NATIONAL SAMPLE, BUT OBVIOUSLY ALSO A PROBLEM FOR MEN. WHILE 72% OF THE MEN IN PSYCHOLOGY AND ANTHROPOLOGY FELT THAT THEY WERE REGARDED AS COLLEAGUES OR APPRENTICES BY THEIR MAJOR FACULTY CONTACT, ONLY 39% OF THE MEN IN MATHEMATICS DID SO. AT LEAST 40% OF THE MEN IN THE MAJOR DOCTORAL DISCIPLINES INDICATED THAT THEY DID NOT FEEL LIKE COLLEAGUES OR APPRENTICES TO THEIR MAJOR FACULTY CONTACT.

GRADUATE STUDENT ORGANIZATIONS CAN PROVIDE AN IDEAL MECHANISM FOR STUDENTS TO DEVELOP THE INTERPERSONAL AND PROFESSIONAL SKILLS WHICH CONTRIBUTE TO THEIR SENSE OF COLLEAGUESHIP AND APPRENTICESHIP. THE PARADOX IS THAT MANY STUDENTS ARE SO INVOLVED IN THEIR INDIVIDUAL PROGRESS OR PARALYSIS THAT THEY FAIL TO SEE THE POSSIBILITY OF ORGANIZATIONAL SOLUTIONS. THIS IS PARTICULARLY TRUE FOR STUDENTS WHO SEE PROBLEMS IN GRADUATE SCHOOL AS EVIDENCE OF PERSONAL FAILURE AND INEPTITUDE, RATHER THAN EVIDENCE OF PROBLEMS SHARED BY MOST STUDENTS. UNTIL QUITE RECENTLY, WOMEN HAVE TENDED TO INTERNALIZE BLAME FOR THESE PROBLEMS, WHILE MEN HAVE TENDED TO PROJECT IT ON FACULTY, AND ON THE SYSTEM.

TABLE IV

DISTRIBUTION OF RESPONSES ON ITEMS TAPPING FACULTY ATTITUDES TOWARD WOMEN GRADUATE STUDENTS, AND STUDENT PERCEPTIONS OF FACULTY ATTITUDES: % AGREE STRONGLY, OR AGREE WITH RESERVATIONS. FACULTY ITEM IS "THE WOMEN GRADUATE STUDENTS IN THIS DEPARTMENT ARE NOT AS DEDICATED AS THE MALES. THE STUDENT ITEM IS "THE PROFESSORS IN MY DEPARTMENT DON'T TAKE FEMALE GRADUATE STUDENTS SERIOUSLY."

DISCIPLINE	FACULTY	FEMALE STUDENTS	PERCENTAGE DIFFERENCE
HISTORY	19%	48%	27*
	(395)	(91)	
ENGLISH	22%	42%	20*
	(495)	(149)	
CLINICAL PSYCHOLOGY	22%	28%	6 NS
	(114)	(18)	
POLITICAL SCIENCE	23%	55%	33*
	(307)	(67)	
SOCIOLOGY	23%	40%	17*
	(212)	(45)	
BIOLOGICAL AND PHYSICAL SCIENCES	35%	30%	- 5 NS
	(2403)	(252)	
EXPERIMENTAL PSYCH.	49%	42%	- 7 NS

SOURCE: SECONDARY ANALYSIS OF DATA GATHERED BY THE NATIONAL SURVEY OF HIGHER EDUCATION, SPONSORED BY THE CARNEGIE COMMISSION ON HIGHER EDUCATION.

* STATISTICALLY SIGNIFICANT AT THE .05 LEVEL, USING A CONSERVATIVE ESTIMATE OF A TWO-TAILED TEST.

Trend data on doctoral dropouts provided by the Graduate Division at Berkeley suggest the powerful impact of students organizing themselves on their own behalf. Table V, on page 11, reflects the growth of Women's Caucus Activities at Berkeley. The longstanding sex difference of twenty percentage points in dropouts was gradually reduced to zero in the wake of women's increasing efforts to seize their own autonomy.

Some of the processes which operate to drive women out of doctoral programs also work against men. Solutions derived from working with women students might also be used to reduce attrition among talented men. The problem is to help students recognize that it is to their advantage to become involved in departmental student organizations, in order to take responsibility for their own professional growth and development. There appears to be considerable student resistance to the idea of "professional socialization," in which students are rewarded for becoming more and more like faculty, and penalized for serious deviation from the faculty model of appropriate professional academic behavior. This resistance comes from men as well as women, and needs to be explored. Part of it may stem from rejection of the passivity and denial of authonomy implied by the process of being socialized by authority figures who are solely responsible for determining standards of evaluation. Part of it may stem from rejection of these standards of evaluation. Part may stem from a rejection of the faculty models of appropriate professional attitudes and behavior.

Students should be encouraged to organize on their own behalf to improve communications among each other, and with faculty; to find out, and make explicit the standards of evaluation governing performance and professional behavior; to explore and make explicit alternatives to accepted models of appropriate professional attitudes and behavior; to find out, and make explicit the opportunities and limitations for employment imposed by the rapidly changing supply and demand for doctorates in each field.

Some might argue that such activities are the primary responsibility of the faculty. However, for faculty to continue to spoon-feed students with the rules for success becomes the worst form of paternalism and denial of student autonomy. The paradox is that students have to act like colleagues and apprentices in order to be so treated, and they have to feel like colleagues and apprentices in order to act accordingly.

PERCENTAGE DROPOUTS FROM DOCTORAL PROGRAMS BY THE FOURTH YEAR OF GRADUATE SCHOOL, UNIVERSITY OF CALIFORNIA, BERKELEY

YEAR OF ENTRANCE	MEN	WOMEN	TOTAL	SEX DIFFERENCE
1962	22% (1093)	42% (194)	25% (1287)	20*
1963	20% (1185)	36% (213)	23% (1398)	16*
1964	21% (1233)	36% (264)	23% (1497)	15*
1965	20% (1185)	34% (238)	22% (1423)	14*
1966	22% (1214)	33% (287)	24% (1501)	11*
1967	26% (1176)	31% (279)	27% (1455)	5 NS
1968	27% (1136)	27% (323)	27% (1459)	-
TOTAL	22% (8222)	34% (1798)	24% (10020)	12*
DIFFERENCE BY YEAR OF ENTRANCE	+ 5	- 15*	+ 2	

SOURCE: GRADUATE DIVISION, UNIVERSITY OF CALIFORNIA, BERKELEY. IN THE ENTERING COHORT OF 1962, 22% OF THE 1093 MEN HAD DROPPED OUT OF THE DOCTORAL PROGRAM BY THE FOURTH YEAR. IN THAT SAME COHORT, 42% OF THE WOMEN HAD DROPPED OUT BY THE FOURTH YEAR. BY THE ENTERING COHORT OF 1968, THE SEX DIFFERENCES IN FOURTH YEAR DOCTORAL DROPOUTS HAD DISAPPEARED. THERE WAS A REDUCTION OF FIFTEEN PERCENTAGE POINTS IN FOURTH YEAR DROPOUT RATE FOR WOMEN FROM 1962 THROUGH 1968.

There is considerable variation across disciplines in the kinds of attitudes and commitments required for success. One possible approach to student initiated organization on their own behalf is outlined below. It would need to be tailored to meet the special needs of individual departments, disciplines, curriculum requirements, and job opportunities and limitations.

STUDENT ORGANIZATION ACTIVITIES

Students could learn to become autonomous in three major areas of their graduate careers by organizing seminars around those areas, and taking the initiative to invite faculty to contribute their special expertise on particular topics. At the same time, they need faculty support and encouragement for taking initiative.

The first major area is that of clarifying for first year students precisely what a serious professional commitment involves. This could be done in a seminar held by advanced doctoral students on behalf of entering students during their first quarter. Weekly sessions could help first year students decide early in their graduate careers whether they really want to commit themseves to the exacting demands of their discipline. A useful text for such a seminar would be Pierre van den Berghe's little gem, ACADEMIC GAMESMANSHIP, New York, Abelard, 1970. Topics for such a seminar might include:

1. Introduction to the Department: Overview, and introduction of the entire faculty to first year students. Examination of the diversity of research interests, theoretical perspectives, and methodological strategies of the faculty. This could help students to decide with whom they might be intellectually compatible during their first few months.

2. Introduction to the job market, for persons with Master's degrees, and with doctorates. Presentation of data on approximate number of new doctorates in the field; approximate number of openings each year, nation wide, and at various types of institutions; range of job alternatives open (graduate teaching and research; undergraduate teaching; industry; business; government - Federal, State, Local; Private research organizations; other options.)

The remaining sessions might be devoted to the means of achieving career advancement, given the options available, and those in which the

STUDENT IS INTERESTED. MEANS TO ADVANCEMENT INCLUDE:

3. PUBLICATIONS: IMPORTANCE OF RESEARCH AND PUBLICATIONS FOR EACH OF CAREER OPTIONS; WHICH JOURNALS MOST APPROPRIATE FOR WHICH OPTIONS; HOW TO SUBMIT PAPERS; CONSTRUCTIVE WAYS OF HANDLING REJECTIONS.

4. GRADUATE STUDENT JOB EXPERIENCE: HOW TO MAKE TEACHING ASSISTANTSHIPS AND RESEARCH ASSISTANTSHIPS CONTRIBUTE TO CAREER ADVANCEMENT, RATHER THAN IMPEDE IT; IMPORTANCE OF EARLY BUILDING UP OF VITA; EXTRA-CURRICULAR ACTIVITIES THAT WILL ENHANCE OR HINDER ADVANCEMENT.

5. ORGANIZATION MEMBERSHIP: WHICH SCHOLARLY, SCIENTIFIC, OR PROFESSIONAL SOCIETIES ARE IMPORTANT FOR EACH OF THE CAREER ALTERNATIVES? HOW DO YOU JOIN THEM? HOW DO YOU USE THEM FOR CAREER ADVANCEMENT? IMPORTANCE OF PARTICIPATION IN REGIONAL AND NATIONAL MEETINGS; IMPORTANCE OF DEVELOPING RELATIONS WITH GRADUATE STUDENTS WITH SIMILAR RESEARCH INTERESTS AT OTHER INSTITUTIONS.

6. FELLOWSHIPS AND AND RESEARCH GRANTS: LETTERS OF RECOMMENDATION, BASED ON CLASSROOM PERFORMANCE, WRITTEN WORK, RESULTS; RECOGNIZING THE IMPORTANCE OF CHOOSING RESEARCH TOPICS WITH LONG-RANGE PAYOFF IN TERMS OF THEORETICAL AND EMPIRICAL FERTILITY IN A FIELD.

7. FIRST POSTDOCTORAL JOB STRATEGIES FOR VARIOUS ALTERNATIVES. IMPORTANCE OF KEEPING OPTIONS OPEN AS LONG AS POSSIBLE.

THE SECOND MAJOR FUNCTION COULD BE FILLED BY A SERIES OF SEMINARS FOR STUDENTS WHO ARE PREPARING FOR QUALIFYING EXAMINATIONS. THESE COULD BE ORGANIZED AROUND SUBSTANTIVE AREAS IN THE DISCIPLINE, SO THAT STUDENTS WORKING ON SIMILAR AREAS COULD WORK TOGETHER TO CARVE OUT THE MAJOR ISSUES AND CODIFY RELEVANT MATERIALS IN PREPARATION FOR EXAMS. THE UNDERLYING ASSUMPTION IS THAT STUDENTS WILL BE FREE TO WORK HARD TO MEET EACH OTHER'S EXPECTATIONS, AND THAT THEY WORK HARDER IN SUCH A CONTEXT THAN IN MEETING THE IMAGINARY EXPECTATIONS OF FACULTY WHO WILL ULTIMATELY DECIDE WHETHER THEY PASS OR FAIL.

THE THIRD FUNCTION COULD BE FILLED BY A SERIES OF SEMINARS FOR STUDENTS ENGAGED IN DISSERTATION RESEARCH. IT WOULD PROVIDE STUDENTS WHO ARE WORKING ON SIMILAR RESEARCH TOPICS WITH AN OPPORTUNITY TO RESOLVE SOME OF THE INTELLECTUAL AND EMOTIONAL ISSUES INVOLVED IN THE DESIGN, EXECUTION, AND WRITING UP OF THEIR RESEARCH BEFORE SUBMITTING IT FOR THE ULTIMATE EVALUATION BY FACULTY.

THIS PAPER HAS TRACED THROUGH RECENT TRENDS IN SEX DIFFERENCES IN DOCTORAL ATTRITION, SUGGESTED SOME OF THE PROCESSES WHICH OPERATE TO DRIVE MEN AS WELL AS WOMEN OUT OF GRADUATE SCHOOL, AND SUGGESTED SOME CONCRETE WAYS IN WHICH GRADUATE STUDENTS CAN TAKE CHARGE OF THEIR OWN AUTONOMY TO BECOME APPRENTICES, AND ULTIMATELY, COLLEAGUES.

Mean Number of Years to Doctorate By Field

Field	Years from Bachelor's To Doctorate	Years from Start of Post-Master's Work To Doctorate		
	Total	Public	Private	Total
Humanities	11.8	6.2	5.5	5.9
	(1,395)	(722)	(690)	(1,412)
Social Sciences	9.2	5.3	4.8	5.1
	(2,446)	(1,325)	(1,148)	(2,473)
Biological Sciences	7.4	4.4	3.2	3.9
	(1,378)	(764)	(621)	(1,385)
Physical Sciences	6.6	3.8	3.6	3.7
	(2,503)	(1,422)	(1,106)	(2,528)
Total	8.5	4.8	4.3	4.6
	(7,722)	(4,233)	(3,565)	(7,798)

Source: A. Tucker, D. Gottlieb, and J. Pease, ATTRITION OF GRADUATE STUDENTS AT THE PH. D. LEVEL IN THE TRADITIONAL ARTS AND SCIENCES, Office of Research Development and the Graduate School, Publication No. 8, 1964, Michigan State University. Mean years from Bachelor's to Doctorate taken from page 59, mean years from time Post-Master's study began taken from page 63.

Number in parenthesis is number of doctorates on which the mean number of years to completion is calculated. Read "The mean time to completion for 1,395 doctorates in the Humanities was 11.8 years."

The study was based on all students who were enrolled in work beyond the master's degree in the traditional arts and sciences at twenty-four selected universities between 1950 and 1953. Data were gathered in 1962.

Data are based on Stratum I Institutions: Schools which fall within the top 15 schools rated by Keniston. Private schools are Chicago, Cornell, Princeton, and Yale. Public schools are Illinois, Indiana, Michigan, Minnesota, UCLA.

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7-9-73